

Summary of Lake Demands and Associated Structures:

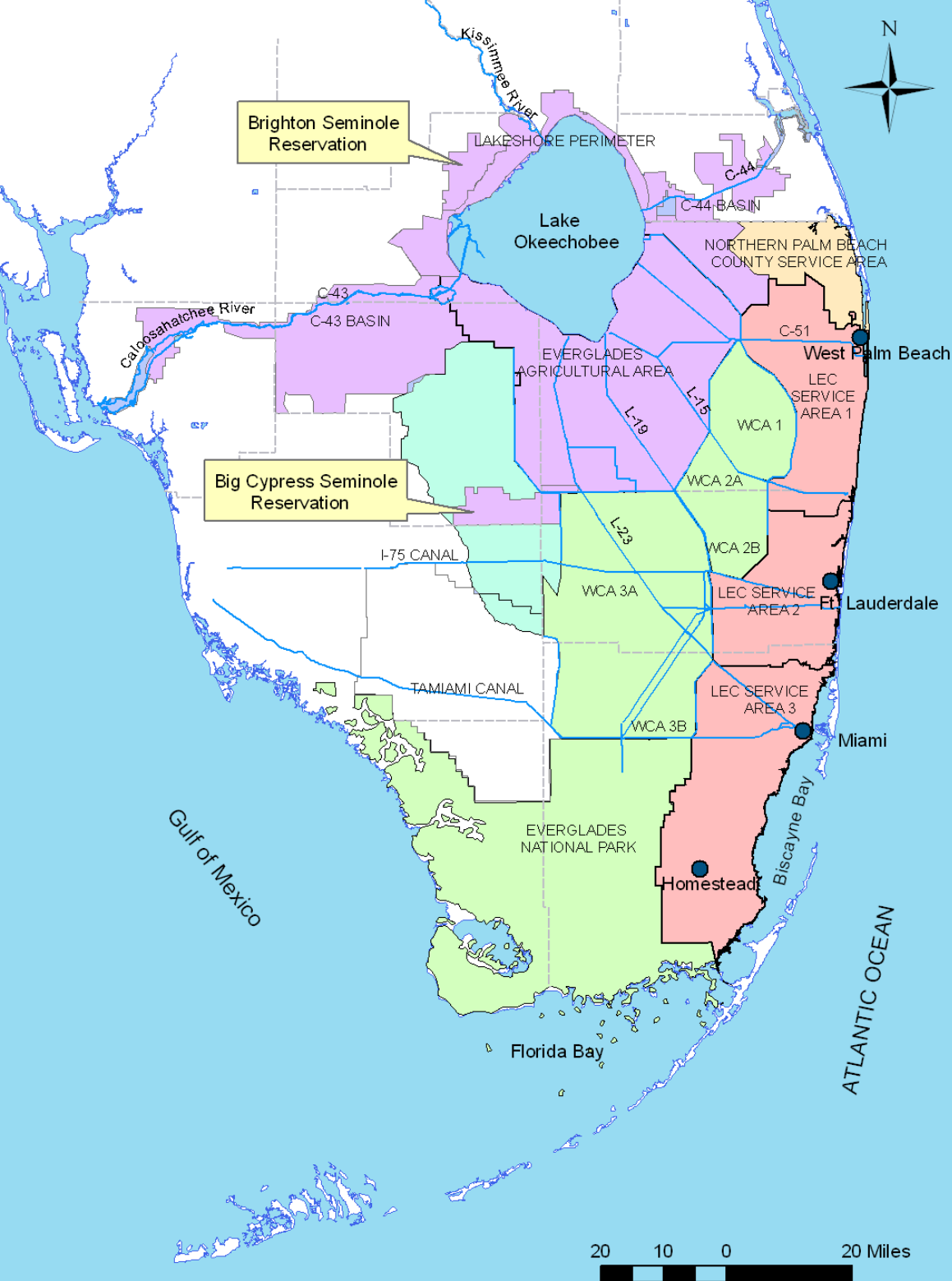
Factors Considered for Sizing Permanent Forward Pumps

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***WRAC Lake Okeechobee Subcommittee
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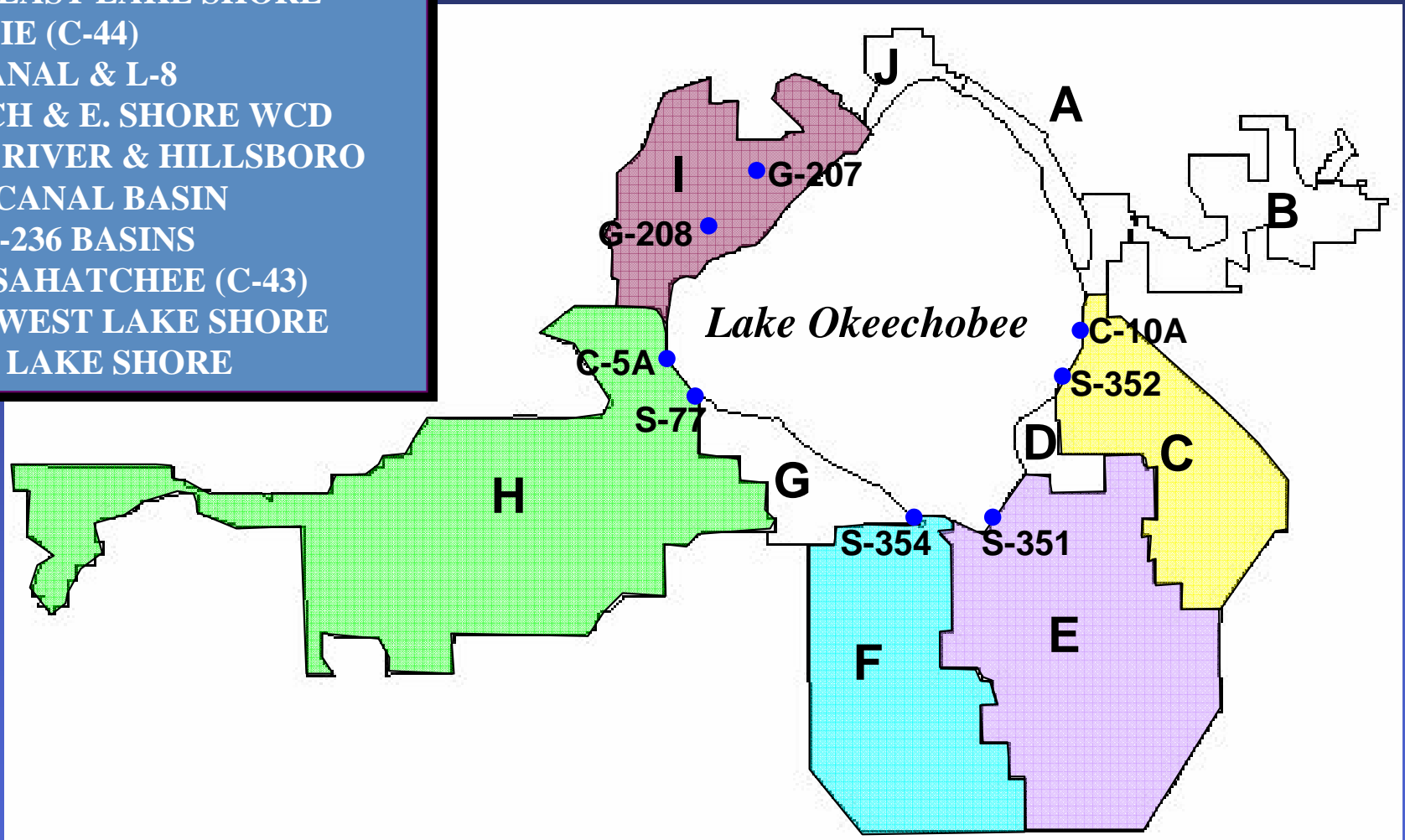
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Location of direct and indirect users of Lake Okeechobee

Lake Okeechobee Service Area (LOSA) Sub-Basin Boundaries

A: NORTHEAST LAKE SHORE
B: ST. LUCIE (C-44)
C: WPB CANAL & L-8
D: E. BEACH & E. SHORE WCD
E: N. NEW RIVER & HILLSBORO
F: MIAMI CANAL BASIN
G: C-21 & S-236 BASINS
H: CALOOSA HATCHEE (C-43)
I: NORTHWEST LAKE SHORE
J: NORTH LAKE SHORE



S-351: Hillsboro/North New River Canal



LOSA Sub-basin:	"E"
Acres Irrigated:	230,380
Forward Pump:	Temp. for drought; 600 cfs
Urban Basin:	Service Area 2 (Broward)
Ave. Dry Flow:	

S-352 & C-10A: West Palm Beach Canal; L-8



LOSA Sub-basin:

"C"

Acres Irrigated:

131,127

Forward Pump:

**Temp. for
drought; 400 cfs**



Urban Basin:

**Service Area 1
(Palm Beach)**

Ave. Dry Flow:

**340 cfs (S-352)
cfs (C-10A)**

S-354: Miami Canal



LOSA Sub-basin:

"F"

Acres Irrigated:

115,751

Forward Pump:

**Temp. for
drought; 400 cfs**



Urban Basin:

**Service Area 3
(Miami-Dade)**

Ave. Dry Flow:

450 cfs

S-77 & C-5A: Caloosahatchee Basin



LOSA Sub-basin:

"H"

Acres Irrigated:

151,059

Forward Pump:

NA

Urban Basin:

Lee County

Ave. Dry Flow:

**1,200 cfs (S-77)
cfs (C-5A)**

G-207 & G-208: Indian Prairie Basin



LOSA Sub-basin:

"I"

Acres Irrigated:

6,463

Forward Pump:

**Temp. for
drought; 400 cfs**

Urban Basin:

NA

Ave. Dry Flow:

100 cfs



Factors Considered for Sizing Pumps

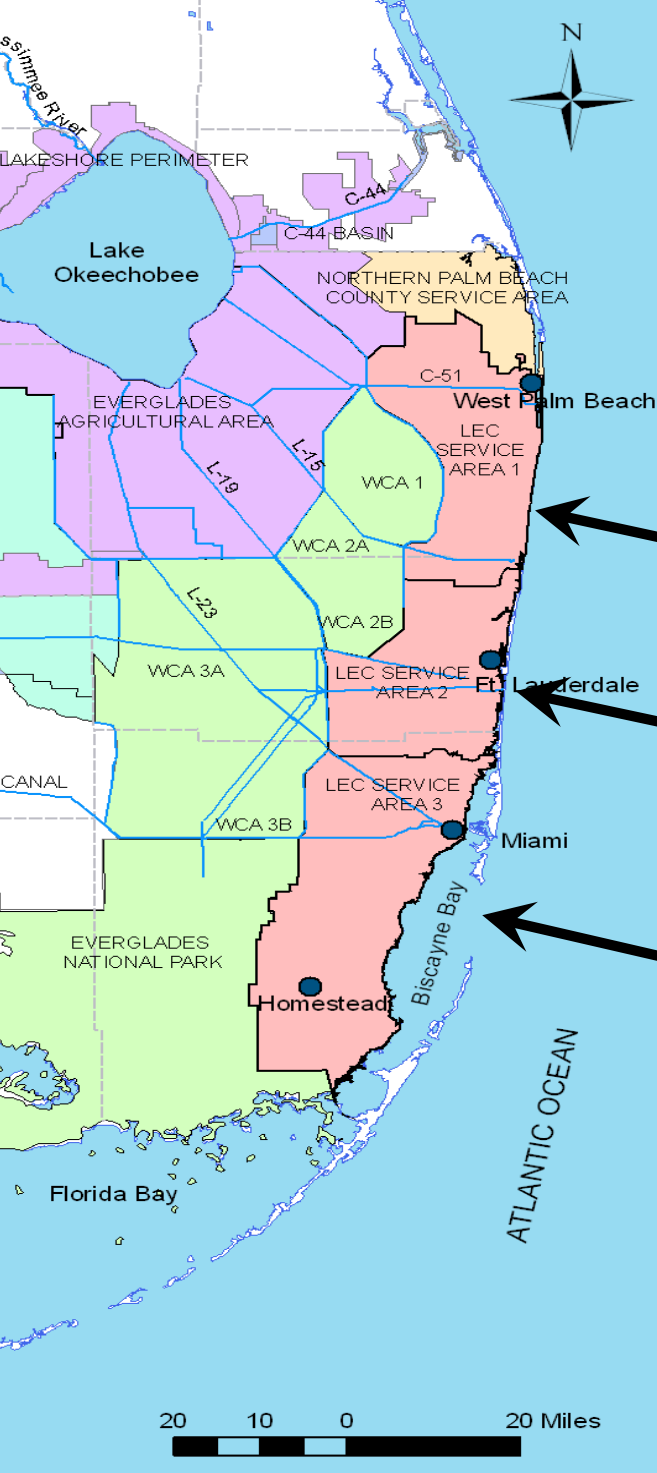
- Large sub basins with multiple users versus basins that have existing infrastructure to attain water when Lake is low
- Demands that would occur at lake elevations < 10.2 ft
- Configuration of existing structures
- Feasibility of pump type and location relative to the dike
- Costs versus probability of use

Phase 1: Feasibility Evaluation

- Identified 8 structures for potential permanent forward pumps
- Estimated target capacities using historical flow data and operations staff knowledge
- Established a preliminary cost target of \$100 million
- Estimated a low Lake stage elevation of 7.5 ft for determination of pump types and capacities

Calculating Water Demands for Sizing Forward Pumps: Agr.

- Determine supplemental irrigation demands of sub-basin
 - Use regional model to calculate evapotranspiration demand
- Subtract applicable water shortage cutbacks
 - Lake Okeechobee Water Shortage Management Plan
- Consider range of demands when pumps are operating versus costs



Indirect Users of Lake Okeechobee: Average Dry Season Flows to the LEC Service Areas from the WCAs and/or the Lake*

* Million gallons per day; January through May

LEC Urban Deliveries from Lake

- Average dry season deliveries
 - Palm Beach 210 cfs
 - Broward 325 cfs
 - Miami-Dade 315 cfs
- Sources of supplemental water supply:
 - Water Conservation Areas; 'regulatory floors'
 - Lake, 'pass through deliveries'
 - Water quality issues

Simultaneously Meeting LOSA and LEC Urban Areas

- **Low potential for simultaneous demands on Lake**
 - **1989-1990 Drought: deliveries not made to S. Dade**
 - **2000-2001 Drought: deviation granted for WCA1**
- **Lag time between low groundwater and saltwater intrusion**
 - **Biscayne MFL:180 days**

Simultaneously Meeting LOSA and LEC Urban Areas (cont.)

- Capacity of the forward pumps will be greater at higher lake stages
- LEC water sources are becoming more diversified through alternative supply development
- Potential for temporary deviation from WCA regulatory floor constraint in emergency conditions
- Cost of additional 850 cfs capacity when history shows little potential for need
- Additional regional water storage projects being developed to reduce competition from the Lake

Next Steps to Refine Pump Sizes

- Use TSP model results and revised water shortage management plan to calculate flows
- Gather shareholder input on pump locations and capacities
- Evaluate feasibility of flexible pump capacities
- Policy direction from Board regarding costs and risks